

REMARKS

In the non-entered Amendment filed April 29, 2005, claims 2 and 16 were to be amended to substitute a generic limitation for the list of specific sucrose synthase genes introduced in Applicants' Amendment filed December 27, 2004. Applicants now understand that the Amendment filed December 27, 2004, although acted on, was never actually entered, and the lists of specific sucrose synthase genes proposed in Applicants' non-entered Amendment filed December 27, 2004 are not present in the claims as currently amended. Thus, the restriction requirement set forth in the Office Action dated March 1, 2005, acting on the non-entered amendment, is believed to be moot. Withdrawal of the Restriction Requirement is respectfully requested.

Claims 1-6, 8, 9, 12-17, 19-22, 24, 26 and 30 have been amended to delete dependence on withdrawn claims and to better describe the claimed subject matter. Support for the claims as amended can be found throughout the disclosure with particular reference to the claims as originally filed. Claim 11 has been canceled without prejudice or disclaimer of the subject matter described therein.

By the present Amendment, paragraph [0008] of the specification has been amended to capitalize the trademark FIBERMAX™.

No new matter has been added. Applicants reserve the right to file a continuation or divisional application directed to any subject matter that may have been canceled by the present amendments.

In the non-entered Amendment filed April 29, 2005, Applicants noted the telephone conversation held on June 11, 2005 between Applicants representative and the Examiner. In that telephone conversation, the restriction requirement and the prior rejections of the claims under 35 USC 112, ¶1 were discussed. Pursuant to that discussion, an Information

Disclosure Statement including copies of ten sequences selected from the list of sucrose synthase genes found at pp. 14-18 of the specification was April 29, 2005. A copy of that material is also attached herewith in the event that the Information Disclosure Statement filed with the non-entered amendment. These sequences are all full-length sequences which were publicly available prior to the December, 2000 filing date of the parent of the present application.

Applicants note the Examiner's statement, at p. 10 of the Official Action mailed June 30, 2004, that claims 1-3, 8-17 and 21-30 are free of the prior art.

Oath/Declaration

At p. 3 of the Official Action mailed June 30, 2004, the Examiner notes that the originally submitted Oath and Declaration is defective because it does not identify the citizenship of each inventor, and does not indicate the priority claim of the instant application to provisional application 60/251,852. A copy of the substitute Oath and Declaration previously submitted with the non-entered Amendment filed December 27, 2004 is also attached hereto.

Claim Objections

At p. 3 of the Official Action mailed June 30, 2004, the Examiner objected to claims 1 and 15 on the basis that they encompass non-elected subject matter. Claims 1 and 15 have been amended in order to remove reference to non-elected subject matter.

At p. 4 of the Official Action mailed June 30, 2004, the Examiner objected to claims 8, 9, 21, 22, 24, 26, and 30 for depending, in part, from withdrawn claims. Claims 8, 9, 21, 22, 24, 26, and 30 have been amended to delete their dependency from withdrawn claims.

In view of these amendments, withdrawal of these objections is respectfully requested.

Claim Rejections – 35 USC §112

Written Description

In the Official Action mailed June 30, 2004, claims 1-3, 8-17, and 21-30 were rejected as allegedly failing to comply with the written description requirement of 35 USC 112, first paragraph. This rejection is respectfully traversed.

At p. 5 of the Official Action mailed June 30, 2004, the Examiner conceded that the present specification adequately describes “a nucleic acid sequence of SEQ ID NO: 1 and an amino acid sequence of SEQ ID NO: 2; and lists the GenBank Accession numbers of several sucrose synthase sequences known in the art on pages 14-18 of the specification.” However, the Examiner asserted that the specification does not adequately describe

a polynucleotide sequence having 70% sequence identity to SEQ ID NO: 1; a nucleotide sequence hybridizing under stringent conditions with a polynucleotide sequence encoding SEQ ID NO: 2; a nucleotide sequence hybridizing under stringent conditions with a polynucleotide sequence comprising SEQ ID NO: 1; or a part of an RNA capable of being translated into an active sucrose synthase protein that encodes an active sucrose synthase protein.

Official Action mailed June 30, 2004 at 5.

Applicants maintain that the claims, as originally filed, fully comply with the written description requirement of 35 USC 112, ¶1, and without conceding to the allegations of the rejection, the claims have been amended. Applicants respectfully submit that all the claims, as amended, fully comply with the written description requirement of 35 USC 112, ¶1.

Applicants note the telephone conversation held on June 11, 2005 between Applicants representative and the Examiner. In that telephone conversation, the rejections of the claims

under 35 USC 112, ¶1 were discussed. Pursuant to that discussion, an Information Disclosure Statement including copies of ten sequences selected from the list of sucrose synthase genes found at pp. 14-18 of the specification was filed. A copy of that material is also attached hereto. These sequences are all full-length sequences which were publicly available prior to the December, 2000 filing date of the parent of the present application.

Information which is well known in the art need not be described in detail in the specification. *See, e.g., Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1379-80, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986); *and* M.P.E.P. § 2163. The Federal Circuit recently reiterated that there is no *per se* rule that sequences of claimed DNA molecules must be given in an application in order to fulfill the written description requirement. *Capon v. Eshhar v. Dudas*, No. 03-1480 (Fed. Cir. 2005). Each application must be examined on a case-by-case basis in view of the state of the art and the specification. *Id.* In view of the level of knowledge in the art, including that examples of sucrose synthase genes were known, there is no requirement that the specification recite even one example sequence. *Id.* at 15.

In view of the foregoing, withdrawal of the rejection is respectfully requested.

Enablement

In the Official Action mailed June 30, 2004, claims 1-3, 8-17, and 21-30 were rejected as allegedly failing to comply with the enablement requirement of 35 USC 112, first paragraph. This rejection is respectfully traversed.

At p. 9 of the Official Action mailed June 30, 2004, the Examiner asserts that

Undue trial and error experimentation would be required for one of ordinary skill in the art to screen through the multitude of non-exemplified sequences, either by *in vitro* testing for cellulose synthesizing activity or by *in vivo* transformation and analysis of fiber properties or development, in order to identify those sucrose synthase isoforms that when expressed in a plant would produce plants with an altered fiber development or properties, or improve fiber yield, improve fiber quality, or increase seed size by providing cells of plants as broadly claimed.

Applicants maintain that the claims, as originally filed, fully comply with the enablement requirement of 35 USC 112, ¶1.

Please consider the accompanying declaration by Dr. Tony Arioli that was originally submitted with the non-entered amendment filed December 27, 2004. In summary, this declaration provides confirmation of and further details for the experiments described in Example 3. Dr Arioli also expresses his opinion that, contrary to what has been asserted by the Office, the specification does provide guidance for using other polynucleotides encompassed by the claims that encode an active sucrose synthase to alter fiber development and improve fiber quality by providing cells of plants with a polynucleotide capable of being translated into an active sucrose synthase; the specification does teach that sucrose synthase encoding polynucleotides other than SEQ ID No. 1 alter fiber development; and the specification does teach an increase in fiber size.

In addition, Dr Arioli also points out that experimental results according to Example 3 of the patent application indicate that the differences between sucrose synthase isoforms, heavily relied upon by the Office in support of the enablement rejection, are not critical to achieve fiber length increase in his opinion. Indeed, the over-expression in cotton fiber cells of a sucrose synthase isoform normally expressed in tubers from potatoes and normally involved in starch biosynthesis does achieve the goals of the invention. A pivotal feature of the invention for the increase of fiber length is the increase in the level of sucrose synthase in fiber cells. The normal fate and expression pattern of the enzymatic isoform of sucrose synthase actually used to increase the fiber length is not critical.

For at least the foregoing reasons, Applicants respectfully submit that it would not require undue experimentation for one of ordinary skill in the art at the time the application

was filed to make and use the invention as presently claimed. Accordingly, withdrawal of this rejection is respectfully requested.

Definiteness

In the Official Action mailed June 30, 2004, claim 11 was rejected under 35 USC 112, second paragraph, as allegedly indefinite. This rejection is respectfully traversed.

The Examiner alleged, at p. 10 of the Official Action mailed June 30, 2004, that claim 11 is indefinite in its use of the trademark FIBERMAX™. Without conceding to the Examiner's position, but solely in an effort to expedite prosecution, claim 11 has been deleted without prejudice to or disclaimer of the subject matter contained therein.

CONCLUSION

It is believed that this Amendment and Reply addresses every outstanding issue in the present application and that a Notice of Allowance is next in order. In the event that there are any questions concerning this paper, or the application in general, the Examiner is respectfully urged to telephone Applicants' undersigned representative so that prosecution of the application may be expedited.

Respectfully submitted,

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BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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